Technical training.
Product information.

F30 Displays, Indicators and Controls

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BMW Service

General information

Symbols used

The following symbol is used in this document to facilitate better comprehension or to draw attention to very important information:

Contains important safety information and information that needs to be observed strictly in order to guarantee the smooth operation of the system.

Information status and national-market versions

BMW Group vehicles meet the requirements of the highest safety and quality standards. Changes in requirements for environmental protection, customer benefits and design render necessary continuous development of systems and components. Consequently, there may be discrepancies between the contents of this document and the vehicles available in the training course.

This document basically relates to the European version of left-hand drive vehicles. Some operating elements or components are arranged differently in right-hand drive vehicles than shown in the graphics in this document. Further differences may arise as a result of the equipment specification in specific markets or countries.

Additional sources of information

Further information on the individual topics can be found in the following:

- Owner's Handbook
- Integrated Service Technical Application.

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The information contained in this document forms an integral part of the technical training of the BMW Group and is intended for the trainer and participants in the seminar. Refer to the latest relevant information systems of the BMW Group for any changes/additions to the technical data.

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F30 Displays, Indicators and Controls

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F30 Displays, Indicators and Controls

1. System Overview

1.1. Introduction

As with all other BMW models, the operating concept of the new BMW 3-Series center is based on a clear and optimized layout of the driving area. The number of switches has been reduced in order to simplify logical operation. The display and operating elements are organized corresponding to their function.

F30 overview of displays and operating elements

Index	Explanation
1	Instrument cluster (KOMBI)
2	Head-Up Display
3	Central Information Display (CID)
4	Favorite buttons for individual assignment
5	Gear selector lever (GWS)
6	Controller (CON)
7	Driving experience switch
8	Control buttons, steering wheel
9	Operating facility for driver assistance systems

F30 Displays, Indicators and Controls

2. System Components

2.1. Instrument cluster

The central display unit with speedometer, rev counter, fuel gauge, engine oil temperature, and indicator and warning lights is referred to as the instrument cluster.

The instrument cluster receives information on the wiring harness in the form of analogue and digital electrical signals. These signals are processed and then displayed in the instrument cluster, or passed on as information to other control units.

Depending on the equipment, two different instrument cluster versions are used in the F30.

As a control unit, the basic version of the instrument cluster is a bus user on the PT-CAN.

As a control unit, the high version of the instrument cluster is a bus user on the MOST bus and on the PT-CAN.

F30 versions of instrument clusters

Index	Explanation
A	Basic version of instrument cluster
B	High version of instrument cluster

In addition, there are different versions of the two variants of the instrument cluster depending on the vehicle line. In the following image you see the instrument cluster of the different lines using the example of the high-version instrument cluster.

F30 line versions, instrument cluster, high-version

F30 Displays, Indicators and Controls

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Index	Explanation
A	Instrument cluster without line package or with BMW Luxury Line package PA 7S2
B	Instrument cluster with BMW Modern Line package PA 7S1
C	Instrument cluster with BMW Sport Line package PA 7AC

2.1.1. Basic version of instrument cluster

F30 basic instrument cluster

Index	Explanation
1	TFT display

The basic instrument cluster in the F30 has five analogue instrument dials in four tubes. The basic version of the instrument cluster incorporates a TFT display with a resolution of 320 x 120 pixels at the bottom between the round instruments. It has a screen diagonal of 2.7“.

The basic instrument cluster is installed in the F30 for vehicles without Professional navigation system (optional equipment 609), without Lane departure warning (optional equipment 5AD), without Head-Up Display (optional equipment 610), and without speed limit information (optional equipment 8TH).

The two large round instruments show the road speed and engine speed. The indication of the status of the automatic engine start-stop function (MSA) (READY/OFF) is integrated in the rev counter. The current fuel consumption is displayed at the bottom of the rev counter.

The two small round instruments on the left- and right-hand side show the fuel tank capacity and engine oil temperature respectively.

The indicator lights are located centrally at the top between the two large round instruments and below the speedometer.

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2. System Components

2.1.2. Instrument cluster, high version

F30 instrument cluster, high version option 6WA

Index	Explanation
1	TFT display

The instrument cluster high-version has been designed for the F30 and has four analogue instrument dials in four tubes. Each of the scales in the instrument cluster is specific to the country, vehicle and engine.

The two large round instruments show the road speed and engine speed. The indication of the status of the automatic engine start-stop function (MSA) (READY/OFF) is integrated in the rev counter. The current consumption is shown on the display under the rev counter and the energy recovery is shown in the coasting (overrun) mode.

The two small round instruments on the left- and right-hand side show the fuel tank capacity and engine oil temperature respectively.

The high version of the instrument cluster is available as the optional equipment instrument cluster with extended functional scope (optional equipment 6WA). The high version of the instrument cluster incorporates a TFT display with a resolution of 640 x 160 pixels below the round instruments. Its diagonal screen size is 5.7“.

The high version of the instrument cluster is required for some items of optional equipment. This includes the Professional navigation system (optional equipment 609), the Lane departure warning (optional equipment 5AD), the Head-Up Display (optional equipment 610) and the speed limit information (optional equipment 8TH). A variant of the instrument cluster is used in connection with the Head-Up Display and has an APIX interface.

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2. System Components

2.1.3. On-board computer

The F30 is equipped as standard with an on-board computer.

The on-board computer functions can be called up by briefly pressing the on-board computer button on the steering column switch.

Pressing the on-board computer button again displays information in the following order:

- Range
- Average consumption
- Average speed
- Distance (with activated route guidance)
- Arrival time (with activated route guidance)
- Arrow display of the navigation system (for activated route guidance and deactivated display in the Head-Up Display)
- Date
- Speed limit information.
- ECO PRO bonus range.

The functions to be displayed in the CID can be selected via "Settings" -> "Information Display".

F30 buttons on steering column switch

Index	Explanation
1	On-board computer button
2	High-beam assistant button
3	Steering column switches

More detailed information can be obtained from the current Owner's Handbook for the BMW 3-Series sedan.

F30 Displays, Indicators and Controls

2. System Components

2.2. Central Information Display

Depending on the equipment installed, two different versions of a freestanding Central Information Display (CID) are installed in the F30. .

The Central Information Display (CID) in the F30 no longer has a bus connection. The CID is directly connected to the headunit via an APIX interface. APIX (Automotive Pixel Link) is a bit-serial 1 Gbit/s video link with just one copper core pair. The CID is connected by 2 APIX video links to the headunit. The APIX link is an EMC-optimized physical layer for real time video transfer via copper cables. The CID can be supplied with power via two leads directly by the headunit.

As with all new BMW models, the system is operated by means of the central operating element, the controller.

The Central Information Display is an integrated display and operating facility for the following functions:

- Audio functions, such as radio, CD, MP3
- Telephone
- Navigation
- On-board computer, journey computer
- Vehicle information, Interactive Owner's Handbook IBA
- Vehicle settings
- Vehicle functions, such as PDC for example
- BMW Services.

2.2.1. CID with 6.5“ screen diagonal

A CID with 6.5" screen diagonal is installed in conjunction with out navigation. The display resolution is 800 x 480 pixels.

A CID with a black high-gloss clasp is used in vehicles with BMW Professional radio (standard equipment).

F30 CID with 6.5“ screen diagonal

2.2.2. CID with 8.8“ screen diagonal

A CID with 8.8“ screen diagonal is installed in conjunction with the Professional navigation system (option 609). The display resolution is 1280 x 480 pixels. The CID with 8.8“ screen diagonal also has a cover made from anti-reflecting laminated safety glass which stretches to the edge of the CID.

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2. System Components

F30 CID with 8.8“ screen diagonal

2.3. Head-Up Display

The name "Head-Up" describes the principle benefit of this system. The Head-Up Display (HUD) projects a virtual image into the driver's field of view. Important information, e.g. from the cruise control or navigation system with activated arrow display, is reflected on the windscreen and is therefore permanently available in the driver's field of view.

The Head-Up Display (optional equipment 610) in the F30 contains various functions aimed at enhancing road safety and ride comfort. This includes display of:

- Speed
- Speed setting control of DCC
- Collision warning
- Navigation system
- Check Control messages
- Speed limit information
- Lane departure warning.
- Entertainment lists.

The HUD used in the F30 has been developed further to include the following functions:

- Intersection view
- Road symbol in the junction view.

The HUD in the F30 can now also project the color blue, in addition to red and green. Contents can be displayed in all colors of the RGB color spectrum, as is the case with an LCD monitor, by mixing the three colors.

Having the displays in the driver's direct field of view increases safety, as this allows the driver to keep his eyes on the road at all times.

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2. System Components

F30 Head-Up Display

Further information on the Head-Up Display can be taken from the training information F30 Assist Systems.

2.4. Operating elements on the steering wheel

A switch block is integrated into the steering wheel on the left- and right-hand side respectively.

The operating elements for the cruise control with braking function (Dynamic Cruise Control - DCC) are on the left-hand side of the steering wheel.

The operating elements for operation of the radio and telephone functions are on the right.

F30 operating elements on the steering wheel

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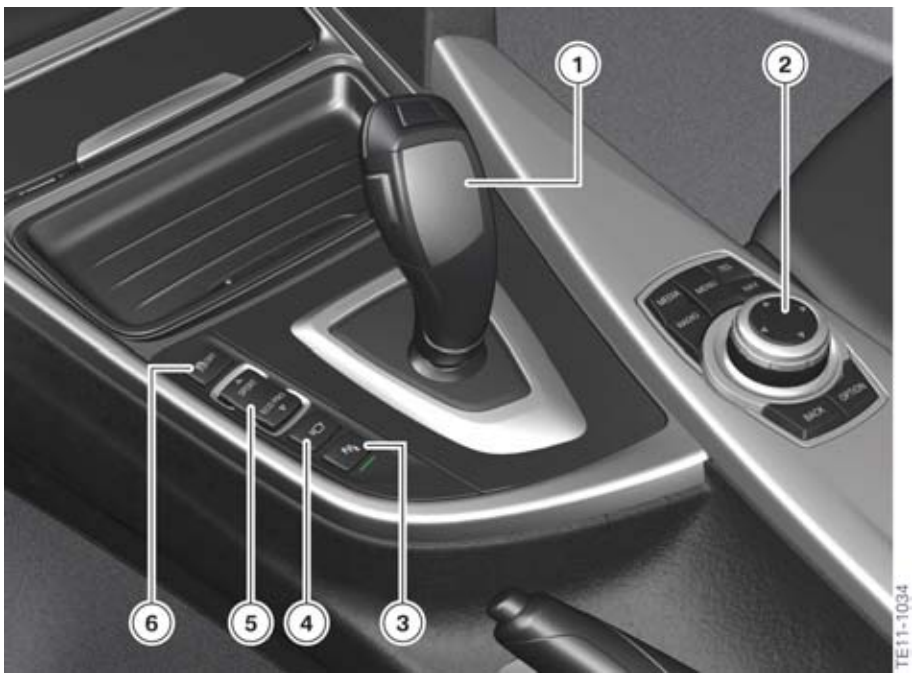
2. System Components

Index	Explanation
1	Increase distance button (only with optional equipment 5DF ACC) not US
2	Rocker switch ±, change speed, set speed
3	Knurled wheel, select/set radio station or track
4	MODE button, change between audio sources
5	Shift paddle for upshifting (only with SA 2TB)
6	Rocker switch +, increase volume
7	Rocker switch -, reduce volume
8	Voice recognition system button
9	Telephone button
10	Reduce distance button (only with optional equipment 5DF ACC) not US
11	Switch DCC on/off, interrupt
12	Resume button, call-up stored speed
13	Set speed button
14	Shift paddle for downshifting (only with SA 2TB)

2.5. Operating elements in the center console

The center console of the F30 features the following operating elements:



F30 operating elements in the center console

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2. System Components

Index	Explanation
1	Gear selector switch
2	Controller
3	Park Distance Control / Reversing camera / Top view
4	Side View
5	Driving experience switch
6	Dynamic Stability Control

2.5.1. Driving experience switch

The F30 is equipped as standard with the driving experience switch.

F30 driving experience switch

Index	Explanation
1	Driving experience switch

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2. System Components

The driver can use the driving experience switch to select different programs which alter various properties of the vehicle depending on the vehicle's equipment specification. The following programs are available:

- SPORT+ (only in vehicles with sport automatic transmission option 2TB, variable sport steering option 2VL or Sport Line PA 7AC)
- SPORT
- COMFORT
- ECO PRO.

When the driver switches to a different program, the selected program is displayed in the instrument cluster. In vehicles with CID a pop-up also appears for the selected program.

SPORT mode

In conjunction with the optional equipment Professional navigation (option 609) additional SPORT mode displays can be called up in the CID.

SPORT mode displays in the CID

Index	Explanation
1	Power output
2	Torque

ECO PRO mode

The ECO PRO mode supports the driver in adopting an optimized-consumption driving style and reduces fuel consumption through intelligent control of energy and A/C management. Essentially the following measures help to reduce fuel consumption:

- The driver is supported in adopting an optimized-consumption driving style by means of an alteration of the accelerator pedal characteristic and the shift program in automatic transmissions or the shift point indicator in manual gearboxes.
- The A/C system is placed in the ECO PRO operating state. Here the A/C system operates at reduced air drying and cooling. If the required temperature can be achieved without cold production, the A/C compressor is switched off. During heating mode the engine operating mode with increased heat dissipation is to the greatest possible extent dispensed.

The ECO PRO operating condition of the heating/air-conditioning unit can be reset by the driver in the COMFORT operating condition. The setting of the operating state of the heating and A/C system is stored and re-established when the ECO PRO mode is called up again.

- The exterior mirror heating is switched off and the seat heating temperature is limited to 37.5 °C instead of 42 °C. These measures are allied to the ECO PRO operating state of the heating and A/C program.
- The driver is prompted by various displays to adopt an optimized-consumption driving style and is supported in optimizing their driving style.

Displays of the ECO PRO mode in the instrument cluster with extended functional scope (extended cluster function optional equipment 6WA)

Index	Explanation
1	ECO PRO display
2	ECO PRO driving instructions
3	Display of the bonus range

The bonus range is the actual additional range which was achieved through your ECO PRO driving style. The bonus range is calculated in the BC according to the personal driving style and the resulting consumption. The BC gets to know the personal long-term consumption of the driver. To determine the range the current consumption in ECO PRO mode is compared to your 'learnt' consumption in the instrument cluster outside of the ECO PRO mode. This creates a difference in liters which is recalculated into the bonus range.

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ECO PRO mode displays in the CID

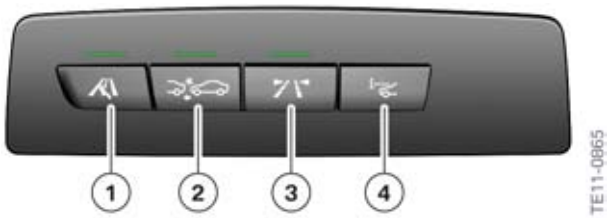
Index	Explanation
1	ECO PRO information in the EfficientDynamics menu
2	Configure ECO PRO mode
3	Consumption history in the EfficientDynamics menu (only with optional equipment 6WA)
4	Technology experience monitor in the EfficientDynamics menu

Through these measures a reduction of the practical consumption of up to 20% can be reached depending on the driving style

Upon activation of the ECO PRO mode the automatic engine start-stop function is automatically switched on.

2.6. Operating facility for driver assistance systems

The individual driver assistance systems can be activated or deactivated via the driver assistance systems operating facility, which is located next to the steering wheel in the dashboard.



F30 operating facility for driver assistance systems

Index	Explanation
1	Lane change warning
2	Collision warning
3	Lane departure warning
4	Head-Up Display (HUD) button not installed, now in the CIC under “Settings” “Head-Up Display”

F30 Displays, Indicators and Controls

2. System Components

2.7. Service functions

2.7.1. Resetting the scope of maintenance work

If the service has been carried out for one or more scopes of maintenance work, replacement of front brake pads for example, the full service interval must be reset for these scopes.

When resetting the scopes of maintenance work, a differentiation is made between two types:

- Statutory scopes of maintenance work, such as the vehicle inspection, area specific, which can only be reset in the "Service" menu.
- All service-related scopes of maintenance work, such as changing the spark plugs for example, are reset via the reset mode in the instrument cluster or via the BMW workshop system.

Activating reset mode

- Terminal 15 ON
- Press and hold down the reset button in the instrument cluster for between five and ten seconds.

Keep the reset button pressed for longer than ten seconds to call up the test functions.

Press the reset button briefly once to scroll through the scopes of maintenance work. Keep the reset button pressed for longer to access the reset menu for the selected scope of maintenance work. Press and hold the button again to reset the scope of maintenance work. It is only possible to reset the scopes of maintenance work once thresholds for specific scopes of maintenance work have been undercut.

Exiting reset mode

- Terminal 15 OFF
- Start engine
- Do not press button for 15 seconds.

2.7.2. Test functions

The test functions are shown in the TFT display of the instrument cluster. The test functions also provide BMW Service with help in troubleshooting without a BMW diagnosis system.

To start functional check

- Terminal 15 ON
- Press and hold down the reset button in the instrument cluster for ten seconds.

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Locking and unlocking the test functions (test function 04)

Only the first four test functions are freely accessible. All test functions are locked from the fifth test function onwards. The test functions can be unlocked via test function 04.

The test functions are unlocked by entering the cross total of the last five digits of the vehicle identification number.

Display of test functions

The test functions are faded into the center of the TFT display, between the two round instruments.

The main test functions are listed below. In addition to the majority of test functions, there are further equivalent functions for which a similar display appears in the instrument cluster.

Test function	Description
01	Identification
02	System test
03	Test end
04	Unlock test functions
05	Current consumption
06	Range / Consumption
07	Fuel gauge values
08	Coolant temperature, ambient temperature, engine oil temperature
09	On-board computer average values
10	Speedometer / Rev counter
11	Display of vehicle voltage
12	Acoustics, triggering of audio signals
13	Read fault codes (“DTC”)
14	Dim LCD
15	Dim PWM signal
16	Condition Based Service
17	Check Control
18	Correction factor, consumption figures
19	Software reset / RAM reload

Operation of test functions

The test functions are operated with the assistance of the reset button in the instrument cluster.

Press the reset button briefly once to scroll through the test functions. Keep the reset button pressed down for longer to access the selected test function.

Exit test functions

- Terminal 15 OFF
- Keep reset button pressed for longer than ten seconds.
  The main menu fades into the instrument cluster
- Call up test function 03 (end test)
- Call up test function 19 (RESET).

To protect against unauthorized access, all but the first four test functions are locked again when the test functions are exited.

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